SECTION 09 67 00

FLUID-APPLIED EQUIPMENT ROOM FLOORING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Requirements for all fluid-applied equipment room flooring work as indicated on the Drawings and as specified herein, to form a monolithic, continuous, fully adhered, traffic bearing, waterproof flooring system on floors and adjacent vertical surfaces and penetrations.

1.02 REFERENCE STANDARDS

A. References and industry standards listed in this Section are applicable to the Work. Unless more restrictive criteria or differing requirements are explicitly stated in the Specifications, or mandated by governing codes or regulations, the recommendations, suggestions, and requirements described in the referenced standards shall be deemed mandatory and applicable to the Work.

B. ASTM C794 - Standard Test Method for Adhesion-In-Peel of Elastomeric Joint Sealants; 2015.

C. ASTM D638 - Standard Test Method for Tensile Properties of Plastics; 2014.

D. ASTM D751 - Standard Test Methods for Coated Fabrics; 2006 (Reapproved 2011).

E. ASTM E648 - Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source; 2014c.

F. NFPA 253 - Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source; 2015.

G. New York City Building Code

1.03 SUBMITTALS

A. Manufacturer's Data
   1. Product data indicating compliance with this specification.
   2. Printed preparation and application instructions for each type and class of material required, and for each substrate material.
   3. Sample of warranty.
   4. Prior to placement of concrete submit requirements for concrete curing; requirements for type of floor drain where applicable.

B. Manufacturer's printed maintenance instructions.

C. Shop Drawings
   1. Details for treating substrate joints and cracks, drain flashing, deck penetrations, termination conditions, and vertical surfaces.

D. Samples
   1. Samples for each type and finish required. Samples are to be in a “step-back” format with each layer shown, and of the specified thickness.
   2. Samples showing range of selected colors and texture variation.
   3. Flashing for drains.

E. Quality Assurance
   1. Material Test Reports: For each flooring component.
   2. Certification of Substrate Acceptability
   3. Certification of applicator by manufacturer.

F. Low Emitting Materials Compliance Submittals:
   1. Provide documentation for materials to be used, as applicable, indicating that the materials comply with low V.O.C. requirements as stated in Specification Section 01600, and as required by governing regulations.

1.04 QUALITY ASSURANCE

A. The Applicator shall be trained and certified by the Manufacturer.

B. Provide all materials from a single source.

C. Substrate Acceptability
   1. Submit a certified statement issued by the manufacturer of the flooring materials and countersigned by the installer, attesting that all areas and surfaces designated to receive the flooring have been inspected and found satisfactory for the reception of flooring, and are not in conflict with the manufacturers requirements. Application of flooring will be construed as acceptance of surfaces.

D. Fire Test Performance
   1. Provide flooring that complies with the following performance criteria as determined by an independent testing laboratory acceptable to authorities having jurisdiction.
   2. Critical Radiant Flux (CRF): Not less than 0.45 watts per cm2. in accordance with ASTM E648 or NFPA 253.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in manufacturer's unopened containers, with trade name, type, grade and other data. Store materials indoors in clean and dry location with temperature between 60o and 90oF.

B. Damaged containers unsuitable for use will be rejected.

1.06 FIELD CONDITIONS

A. Follow the flooring manufacturer’s recommendations for concrete slab curing materials and methods as well as any other recommendations for concrete slab construction.
   1. Prevent exposure of persons to hazardous materials, offensive odors, noxious or toxic fumes or gases. Ensure that such contaminants are not re-circulated through the building ventilation systems or through windows and openings to occupied areas. Ventilate work areas with fresh air and exhaust air continuously to make certain that odors and gases are properly dissipated.

1.07 WARRANTY

A. A. The certified applicator and the manufacturer shall provide a 2 year warranty against defects in materials and workmanship for the Work of this Section. Upon notification of defects repairs and replacements shall be made at no cost to the Authority. Defects shall include but not be limited to delamination of component layers, loss of adhesion to substrate, surface crazing or spalling.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Products: Subject to compliance with requirements, products that may be incorporated into the Work include the following:
   1. Crossfield Products Corp. (Dex-O-Tex), Roselle Park, NJ
      a. "M-E Flooring NR" system, including "Barrier-Guard" waterproofing,"Resistive" protective coating, and "Positred-O-" medium finish topcoat.
   2. Stongwall Industries, Inc., Ridgewood, NY
      a. "Strongfloor SF-112-MR" system including "EM100N" waterproofing, "Strongcote SC#3" protective coating, and "ET-1000-CR" topcoat.

2.02 MATERIALS

A. System Characteristics
   1. Color: As selected by Architect from manufacturer's full range
   2. Integral Cove Base: 4” high minimum, and as indicated on the Drawings.
   3. Overall System Dry Thickness: 3/32” minimum, plus topcoat.
   4. Waterproofing component water based; no hydrocarbon solvents.

B. System Materials
   1. Waterproof membrane: elastomeric synthetic rubber or rubber emulsion.

a. Protective coating: pigmented acrylic latex or latex vinyl copolymer.
2. Mineral aggregate, properly graded
3. Reinforcement for juncture with cove base and other adjacent vertical surfaces: polypropylene fabric.
4. Flashing for drains: non-staining sheet material recommended in writing by flooring manufacturer.
5. Topcoat: epoxy.

C. Physical Properties
1. Properties of the flooring system or of the waterproof membrane separately:

a.	Tensile Strength	ASTM D638	345 psi
b.	Elongation	ASTM D638	580%
c.	Hydrostatic Resistance	ASTM D751	No water penetration

PART 3 EXECUTION

3.01 INSPECTION

A. Examine substrate and other required conditions and accept as satisfactory before commencing application.

3.02 GENERAL

A. Install flooring in accordance with the manufacturer's recommendations.

B. Do not commence preparation and application until all other trades performing work in the area of work under this section have completed their work.

C. Substrate temperature shall be between 60oF and 90oF, or as required by the manufacturer, before and during application, and until material has cured.

D. Maintain proper ventilation, permanent lighting and permanent heating during application and curing.

E. Prohibit smoking or the use of spark or flame devices in all mixing and application areas.

3.03 CONCRETE SLAB CONDITION AND PREPARATION

A. Concrete Substrates: Provide sound concrete surfaces free of laitance, glaze, efflorescence, curing compounds, form-release agents, dust, dirt, grease, oil, and other contaminants incompatible with the flooring materials.

B. Prepare concrete slabs to receive flooring in accordance with the flooring manufacturer's requirements.

C. Determine that slab is structurally sound, and repair cracks, holes, pits with materials recommended by the flooring manufacturer and acceptable to the Authority. Grind and fill concrete surfaces to meet tolerances required by the flooring manufacturer. As recommended by the flooring manufacturer, and as acceptable to the Authority, mechanically scarify concrete substrate to provide a proper surface or to remove curing compounds or other surface contaminants that would interfere with proper bond of system.

The flooring manufacturer and installer shall confirm in writing to the Contractor with a copy to the Authority's representative that the moisture content of the concrete slab is acceptable for application of the flooring system and that the substrate is ready to receive the flooring. As necessary for proper installation provide vapor control primer membrane or other vapor control materials, as recommended in writing by the flooring manufacturer.

D. Sweep surfaces to remove loose particles, dust.

E. Remove grease, oil, sealers, mastics, paint, and all other contaminants using means recommended by flooring manufacturer.

F. Prepare, treat, rout, clean, fill, and reinforce joints and cracks in substrate according to the manufacturer's written recommendations, and as required to prevent telegraphing of cracks through the flooring.

G. Tape at termination points and adjacent surfaces not to be coated with masking tape before applying coats. Remove tape before applications dry.

H. Provide acceptable filler to align surface of flooring with adjacent finish flooring.

3.04 PREPARATION OF TERMINATIONS AND VERTICAL SURFACES

A. Prepare vertical and other surfaces adjacent to flooring to receive a continuation of flooring material in accordance with the manufacturer's written instructions.
   1. Prepare terminations and penetrations through and adjacent to flooring, and at expansion joints, drains, and sleeves.
   2. Provide flashing properly connected to floor drains.
   3. Remove grease, oil, sealers, mastics, paint, and all other contaminants using means recommended by flooring manufacturer.

3.05 APPLICATION

A. Mix and apply each component of the flooring system in compliance with manufacturer's printed instructions to obtain an uninterrupted, uniform, seamless surface.
   1. Evenly broadcast aggregate for skid resistance into the system, except on vertical surfaces, in accordance with the manufacturer's instructions.
   2. System Thickness: not less than 3/32" dry film thickness, plus additional thickness of topcoat.
      a. Apply primer coat as recommended by the manufacturer. Apply over entire surface to receive system and allow to cure.
      b. Apply waterproofing membrane in an even, uniform coating, onto all horizontal surfaces and adjacent vertical surfaces. Apply the number of coats recommended by the manufacturer to achieve the required thickness, allowing recommended time to cure between applications. Provide polypropylene fabric reinforcement at all junctures of floor with base, penetrations, and other adjacent vertical surfaces.
      c. After waterproofing membrane has cured apply protective coating uniformly over the entire surface, in the required thickness. Allow coating to cure between applications.
      d. Apply epoxy topcoat after protective coating is dry and cured.
      e. Cove Base and Transitions
         1) Apply a continuation of flooring materials to a height of at least 4" above the flooring, and as otherwise indicated on the Drawings, on all adjacent and penetrating surfaces. Follow manufacturer's printed instructions.
         2) Continuity of materials shall form a seamless, fabric reinforced, waterproof installation at all coves, corners, and substrate transitions.

3.06 CLEANING

A. After completion of floor system, remove all excess materials and debris from work area.

3.07 PROTECTION

A. Close floor system work area to all traffic for at least 24 hours. Protect as recommended by system manufacturer.

END OF SECTION